

# **EXERCISE BELT AND WEIGHT SYSTEM**

## **RELATED APPLICATIONS**

This application claims the priority of provisional patent application 60/406,467 filed on August 28, 2002 entitled Weight Bearing Exercise Belt.

## **BACKGROUND OF THE INVENTION**

The invention relates to exercise apparatus and particularly to an exercise belt and weight. The prior art vests with weighted pockets, gloves with weight pockets, hand weights and ankle weights have often put undue stress on the users joints, as well as being uncomfortable to wear. Similarly, the prior art exercise belts, worn around the waist, have often not properly distributed the weight thereof about the waist of the user. The effect of disproportionate weight distribution on the spine is particularly well known. For example, it is well known that a large stomach places greater stress on the spinal column, and it increases the risk of having back pain. The prior art weight belt devices have generally given insufficient consideration to the impact of improper distribution of the weights on the spine and other muscle and skeletal structure of the user. Some prior art devices may cause the spine to go out of alignment during gait movement. The body is capable of bearing properly distributed weight properly disposed on the trunk or torso. The prior art devices have, in general, not adequately considered the scientific principles inherent in physics and anatomy. More specifically, the prior art devices have, in general, not provided proper weight distribution along the axial extent of such belts. Such improper weight distribution has often resulted in joint or back stress.

Examples of prior art devices that have not optimized weight distribution are shown in United States patents D 289,785 issued to Lindsey on May 12, 1987; 4,440,525 issued to Perla on April 3, 1984; 3,603,316 issued to Lehman on September 7, 1971 and 3,664,560 issued to Perkins on May 23, 1972.

## **SUMMARY OF THE INVENTION**

It is an object of the present invention to provide substantially uniform weight distribution around the waist of the user.

Another object of the present invention is to provide an apparatus which will allow the user to exercise with a greater total weight than would be possible with belts having a less desirable weight distribution.

Still another object of the invention is to provide apparatus enabling a more rigorous exercise routine and thus enable the user to expend more energy and thus burn more calories because of the capability of a greater total weight that is possible without a detrimental effect on the body structure of the user.

Yet another object of the invention is to provide apparatus which enables the user to more efficiently use exercise time. For example, it is an object to attain a more efficient workout for a given time frame with limited joint stress and no need for heavy equipment.

Still another object of the invention is to provide apparatus which will enable the user to attain a more effective cardiovascular exercise while minimizing the risk to the user of sustaining physical stress or pain.

It is now been found that these and other objects of the invention may be attained in a weight belt dimensioned and configured for wear on the waist of a user which includes a band having first and second axial extremities and first and second sides. The weight belt includes first latching means disposed on a first axial extremity on the first side and second latching means disposed on the second axial extremity on the second side, the first and second latching means are dimensioned and configured for mating engagement with the second side overlapping the first side. The belt includes a plurality of pockets of substantially uniform size and shape on the second side, each of the

1 pockets, when the belt is installed on the waist of a user, being substantially equidistant  
2 from each adjacent pocket. This is true for each pocket throughout the entire  
3 circumference of the torso of the user in the preferred embodiment.

4  
5 Some forms of the invention include a plurality of discrete weights each having a  
6 substantially identical shape and weight and each weight may be dimensioned and  
7 configured for insertion into respective pockets. Similarly each of the plurality of  
8 pockets of substantially uniform size and shape may be elongated. In some forms of  
9 the invention the belt has a centerline and each of the plurality of pockets of  
10 substantially uniform size and shape is elongated in a direction that is substantially  
11 perpendicular to the centerline.

12  
13 In various forms of the invention each of the plurality of pockets of substantially uniform  
14 size and shape and each of the discrete weights each having a substantially identical  
15 shape and weight are dimensioned and configured for snug engagement between  
16 respective pockets and weights. The belt may include a first latching means and the  
17 second latching means that are selected from the group consisting of hook and loop elements.  
18 The belt may include a pocket dimensioned and configured for receiving personal items to be  
19 carried by the user, a loop for hanging items such as keys and a reflective strip extending  
20 around a major part of the belt.

21  
22 In some forms of the invention each of the plurality of discrete weights may include a bore that  
23 may be coaxial with respect to the individual weight.

## 24 25 26 **BRIEF DESCRIPTION OF THE DRAWINGS**

27 The invention will be better understood by reference to the accompanying drawing in  
28 which:

29 Figure 1 is a top view of belt in accordance with one form the invention in an extended  
30 position to permit an optimum visual representation.

31 Figure 2 is a inside or front view of belt illustrated in Figure 1.

32 Figure 3 is an outside or rear view of belt illustrated in Figure 1.

1 Figure 4 is a bottom view of belt illustrated in figure 1.

2 Figure five is a partial top view of belt illustrated in Figure 1, showing weight bars in  
3 respective slots.

4 Figure 6A is an end view of belt showing a flap extended upwardly.

5 Figure 6B is an end view of belt showing a flap folded down over a slot.

6 Figures 7A, 7B, and 7C, are perspective views showing three bars differing in weight.

7 Figures 8A, 8B, and 8C are schematic views showing how spacing of the slots permits  
8 variation of belt length.

9 Figure 9 is a partial inside view with the flap folded upwardly, showing the strip of hook  
10 and loop material.

## 11 12 **DESCRIPTION OF THE PREFERRED EMBODIMENT**

13  
14 Referring now to Figures 1-9 there is shown one form of a weight bearing exercise belt  
15 10 in accordance with the present invention. The belt 10 is worn around the waist of the  
16 user. The apparatus provides a uniformly distributed load about the waist of the user  
17 while allowing a full range of motion and mobility. The exercise belt 10 can be used for  
18 weight loss, strength training, and prevention of bone loss. When the user wears the  
19 belt for weight loss, the body is forced to expend more energy and thus more calories  
20 are burned. Similarly, the belt adds weight to the body and thus causes the heart to  
21 pump harder and therefore exert more effort. The use of the weight belt 10 will also  
22 increase the metabolism of the user with less stress to the limbs and/or joints. Weight  
23 bearing exercise is also important to woman in/or approaching menopause and at risk  
24 of osteoporosis due to the natural bone loss which occurs at that time. The exercise belt  
25 10 helps to strengthen bones and aids in the prevention of bone loss.

26  
27 To attain absolutely uniform distribution of weight and thereby the forces on the torso of  
28 the user, it is essential that a plurality of weights be located at equal intervals about the  
29 torso of the user. Accordingly, it is not possible to provide a single belt that can be used  
30 for every user. Thus, the dimensions of the belt for respective users will vary.

1 In a typical embodiment the belt 10 will include a band 12 having an overall length of  
2 35.5 inches and a height of 3 3/4 inches. The material will typically be ballistic nylon  
3 although other materials of comparable durability and strengths may also be used.  
4 Ordinarily the entire outer face will be covered with so-called loop material 14 of the  
5 type commonly associated with hook and loop fasteners. Such fasteners include those  
6 marketed with the trademark VELCRO.

7  
8 Disposed along a major part of the axial extent of the loop material 14 is a strip of  
9 reflective material 16. Typically the reflective material 16, the loop material 14 and the  
10 band are stitched together extending along all the edges of the reflective material 16.  
11 The reflective material typically extends across three quarters of the axial extent of the  
12 outside of the belt 10. The reflective material 16 facilitates night jogging or exercising.  
13 The band 12 has two axial extremities. A first axial extremity or tip 18 is rounded in a  
14 preferred embodiment. The second axial extremity 19 is substantially square.  
15 Disposed on the loop material 14 near the first axial extremity or tip 18 is a loop 20  
16 dimensioned for holding keys, eyeglasses, sunglasses or the like for the convenience of  
17 the user. Also disposed on the loop material 14 near the first axial extremity or tip 18 is  
18 a pocket 22. The pocket 22 is generally U-shaped and is secured to the band 12 and  
19 loop material 14 by stitching extending along the sides and bottom thereof. The upper  
20 most edge of the pocket 22 has a piece of hook material (not shown), of the type used  
21 in hook and loop fasteners, on the face thereof adjacent to the loop material 14 to  
22 secure the contents of the pocket 22. The pocket 22 is dimensioned to hold money or a  
23 key.

24  
25 The tip 18 of the belt 10 has approximately a six inch section covered by hook material  
26 24. The hook material is selected to mesh and engage the loop material 14 to secure  
27 the belt 10 about the waist of the user. Substantially the entire axial extent of the band  
28 12 is covered by a plurality of uniformly spaced pockets 26 of uniform size. The pockets  
29 26, in the preferred embodiment, are elongated in a direction that is vertical when the  
30 belt 10 is worn by a user that is standing upright. In other words, the pockets 26 are  
31 elongated in a direction that is perpendicular to the centerline of the belt 10. The

1 pockets 26 are defined by a single piece of material, preferably ballistic nylon or the  
2 equivalent in strength and durability, sewn along the lower edge 28 (best seen in Figure  
3 2), the axial extremities 30, 32 as well as at seams 34 intermediate adjacent pockets 26.  
4 As best seen in the Figures 8A, 8B, 8C the width of the seam 34 intermediate  
5 respective adjacent pockets 26 may vary in different embodiments of the present  
6 invention. More specifically, a larger spacing is desirable in belts 10 having a greater  
7 overall length to maintain uniformity of spacing between all the pockets 26. As noted  
8 above it is not possible to provide a single belt that can be used for every user. Thus,  
9 the dimensions of the belt for respective users will vary.

10  
11 The same piece of material that forms the pockets 26 also defines a flap 36 that  
12 extends over above all of the pockets 26 as best seen in Figures 6A, 6B, 9 and 2. Each  
13 of the pockets 26 includes a band 40 of loop material about being upper axial extent  
14 thereof as best seen in Figure 6B. The flap 36 includes a strip of hook material 42  
15 dimensioned and configured for cooperation with the band 40 of loop material to secure  
16 the flap 36 to the respective pockets 26. In a preferred embodiment the flap 36 has a  
17 height of approximately 2 1/4 inches. When the flap 36 is folded over the pockets 26  
18 weight bars are secured therein.

19  
20 In the preferred embodiment each belt 10 has twenty four pockets 26. Ideally the belt  
21 10 is provided with one or more sets of weights or weight bars. All the weights in any set  
22 of weights are of identical physical size and weight. The user will use only the weights  
23 from a given set at any one time to ensure the uniform distribution of load and forces on  
24 the torso of the user. In any given set the weights may be configured, for example, as  
25 shown in Figures 7A, 7B, and 7C to provide the identical outside envelope with different  
26 weights for respective weight bars. More specifically, the weights may be a solid  
27 cylindrical material 50, a piece of cylindrical material with a coaxial central bore having a  
28 first diameter 52, or a piece of cylindrical material with a coaxial central bore having a  
29 larger second diameter 54. Desirable weights for individual weight bars in specific sets  
30 include:

31 For a total weight of 4 lbs. each bar is 2.6 oz.



1 For a total weight of 6 lbs. each bar is 4 oz.  
2 For a total weight of 8 lbs. each bar is 5.3 oz.  
3 For a total weight of 10 lbs. each bar is 6.6 oz.  
4 For a total weight of 12 lbs. each bar is 8 oz.  
5 For a total weight of 15 lbs. each bar is 10 oz.

6  
7 The belt 10 is preferably dimensioned for the individual user so that substantially the  
8 entire surface of the hook material 24 engages the loop material 14. Accordingly, the  
9 pocket 26 closest to the first axial extremity 18 is disposed in closely spaced  
10 relationship to the pocket 26 that is closest to the axial extremity 19. Thus, each of the  
11 pockets 26 is disposed at substantially the same distance from the adjacent pockets  
12 throughout the circumference of the torso of the user. More specifically, this geometric  
13 relationship exists even at and near the juncture or overlap between the axial  
14 extremities 18, 19. It is this geometric relationship which optimizes the load distribution  
15 on the body of the user and minimizes the risk of injury to muscles and bones of that  
16 user.

17  
18 Varying bore sizes in the weights 52, 54 produces a variety of weights but maintains the  
19 same outside dimensions so that all weights will fit snugly into the pockets 26. The  
20 result in snug fit maintains the alignment of the weights 50, 52, and 54. The  
21 maintenance of the alignment is important to the maintenance of good uniform weight  
22 distribution about the torso of the user. For most weights steel is a satisfactory  
23 composition. For belts 10 having a total weight of 12 or 15 pounds the weights may be  
24 manufactured of lead.

25  
26 The invention provides a belt 10 that provides the optimum distribution of the load  
27 together with the ability to vary the total load, for example, from a minimum of 4 lbs  
28 through a gradual increase of up to 15 pounds total weight. This allows a steady  
29 increase in strength and endurance training for beginner, intermediate and advanced  
30 athletes.

1 Although the apparatus disclosed herein has been described with respect to certain  
2 materials and construction, it will be obvious to those skilled in the art to make various  
3 changes from the illustrated preferred embodiment. Such changes are considered to be  
4 within the spirit and scope of the invention.

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